REMARKS

Introduction

Applicants thank the Examiner Corbin for the interview on June 6, 2006. The claims herein have been amended as suggested by the Examiner at the interview.

The interview summary states that Applicants intend to attempt a comparison between the effectiveness of a 0.1 micron lipid particle and a 1 micron particle size that the Saur reference refers to in a particle size range of 1- 100 microns. The scientists at applicants' assignee indicate that this can not be done for the reasons set forth in the attached declaration. The attached declaration, however, comes as close as declarant can come in addressing what the Saur reference shows and the data presented with the declaration illustrates new and unexpected results from the claimed moisture barrier.

With this amendment, claims 1, 4-16, 18, 20-23, 27-75 are pending of which claims 1 20 (method), 38 (article) and 48 (method) and 66 (article) are the independent claims.

The Pending Claims Are Non-Obvious

All of the previously pending new new claims have been rejected as obvious over various combinations of Averbach, Saur, Cebula and Germino. At the interview, it was generally acknowledged by the Examiner and Applicants' attorney that the two main references are Auerbach and Saur. Indeed the Examiner acknowledged Auerbach was more of a more general reference with Saur describing particles in the 1-100 micron range.

Averbach

Averbach's concern is cracking lipids in a moisture barrier. The reference requires a synthetic oleaginous material and says nothing about the particle size of wax or the stabilization of oil in a triglyceride. The reference

- does not describe micropaticles; and
- has lots of oil (see col. 2 and col. 3, ln 8, at least 95% versus 1-35 wt % lipid and 65-99 wt % oil in the claims of this application).

The percentages of oil and fat in the claims overlap with the reference, but the reference does not suggest the claimed invention. The invention stabilizes the oil in the moisture barrier, the reference does not. Averbach generally teaches too much oil and no microparticles. Averbach genererally has an oil content of at least 95 percent (Col 3, line 8), the claims are from 65%. Averbach's lipid content then is generally not more than 1%, see Col. 8, line 52, we

are at 1 to 35%. Averbach's higher lipid content of over 1% was for fruit and vegetable skins and not for different food components having different water activities.

Saur

Saur describes spraying an additive, such as a wax, in a fat or oil solvent, onto a food product where the result is a moisture barrier. The point of Saur is the use of a supercritical fluid such as carbon dioxide as a carrier for oil or fat soluble flavorant, or for edible moisture barriers. Col. 2. While Saur describes particles which are 1-100 microns, there is not distinction between liquid or solid particles. See Column 4, ln 55 et seq. In the instant application, small solid particles are used to stabilize the oil in the triglyceride component of the moisture barrier.

Cebula

Cebula uses polyol fatty acids as a moisture barrier. Cebula mentions chocolate particles at column 4, ln 50, but not describe particle size of a lipid or the value of the particle size in a combination of triglyceride fat and particulate lipid. The Examiner has admited that Cebula's moisture barrier is different than the claimed barrier, but merely states that Cebula's teachings regarding desired solid fat content barrier thickness are relevant to the claimed invention.

Germino

Germino treats food with stearic acid to obtain a crunchy and chewy food. The reference does not describe the stabilization of a moisture barrier using a particulate lipid having a specific particle size range.

Saur Can Not Be Duplicated

As the declaration attached hereto explains, Saur can not be duplicated and compared to the instant invention for a variety of reasons set forth in the declaration. The Examiner has suggested that in view of Saur and the 1-100 micron range set forth therein that Applicants try to duplicate a moisture barrier having a particle size of one micron and compare it with a barrier that has particles of less than 0.1 micron. Saur does not provide sufficient information to do such a comparison. Saur merely provides a range of particle sizes for a food additive which particles may be liquid or solid suspended in a super critical fluid. That is not the subject matter of the instant patent application. Indeed Saur's particle sizes

in Saur's particle size range are large. This suggests the use of commercial compositions which do not have sufficient small particles which would stabilize a moisture barrier of fat and liquid oil.

Without knowing the particle distribution of the particles in the Saur spray and if it is assumed that the average particle size in Saur's super critical fluid is one micron, Applicants cannot generate data to compare that composition with a composition described in the claims. This is because Applicants do not know that particle size distribution in Saur's spray which uses the super critical fluid. If the particle size range of Saur's composition was truly 1 to 100 microns then clearly the particles in the composition would be too large for stabilization of a moisture barrier composition. Indeed the data described in the attached declaration shows this. If Applicants assume all of Saur's particles were one micron and they assumed that the effectiveness of small particles in moisture barrier was linear, that is one micron particles were five times more effective than five micron particles, then Applicants can conclude that particles with a 0.1 micron or less size will provide a significantly more effective moisture barrier than the composition with a one micron size. To make a composition that is entirely made of particles which are one micron would be extraordinarily difficult and time consuming. Moreover, even if it were made, it would not permit a precise comparison with the composition of Saur because Saur's composition almost certainly has particles of various sizes where the particle size distribution is not determinable from the Saur patent.

If Saur used a commercial solid particulate lipid composition, such a composition would generally have large particles. Commercial particulate lipid compositions have large particles and would have to be milled and microparticulated to have sufficient lipid particles of 0.1 microns or less to provide a moisture barrier which is stable and a reduced moisture loss as described in this application.

Data Is Provided Which Shows New And Unexpected Results

The declaration provides data which compares the effectiveness of a moisture barrier having large lipid particles versus small lipid particles is set forth herein and a curve illustrating this data is attached hereto. The importance of particle size is illustrated by this data and the results shown by the graph attached hereto are new and unexpected. The barriers tested included: (1) 10 weight percent solid fat and 90 weight percent low melting liquid triglyceride fat with large lipid particles having an average particle size of 5.1 microns; (2) 70 weight percent solid fat and 30 weight percent low melting liquid triglyceride fat with

large lipid particles having an average particle size of 5.1 microns; (3) 10 weight percent solid fat and 90 weight percent low melting liquid triglyceride fat with small lipid particles where there is a significant amount of solid lipid particles of less than 0.1 microns; and (4) 70 weight percent solid fat and 30 weight percent low melting liquid triglyceride fat with small lipid particles where there is a significant amount of solid lipid particles of less than 0.1 microns. As can be seen from the graph attached to the declaration, the moisture barrier with the solid small lipid particles had a significantly reduced moisture loss over the barrier with the large lipid particles. These results are new and unexpected.

The Claims Describe A Moisture Barrier Composition With A Lipid Layer Which Balances Solid Fat Content, Small Lipid Particles And Uses Small Lipid Particles To Stabilize The Moisture Barrier.

The success of Applicants moisture barrier is not just about particle size. Too high of a solid fat content in the lipid layer at a storage temperature makes the moisture barrier too brittle and prone to holes through which moisture could pass. Too low of a solid fat content in the lipid layer at storage temperature makes the moisture barrier too soft and runny, and thus the moisture barrier is ineffective as a result of difficulty in maintaining a stable barrier thickness on a food surface as well as the draining of the liquid oil from the fat particles. Balancing solid fat content, temperature and particle size is important. Further, lipid layer in the moisture barrier described in this application has the combination of a high melting point microparticulate lipid and low melting triglyceride uses the lipid particle size to stabilize the oil fraction of the triglyceride blend. This stabilization is important in that it permits the cooling of the product at very broad rates.

Small lipid particles stabilize the fat, but at least in part because the lipids are high melting. The small high melting lipid particles do not grow during a rapid cooling which growth would permit the liquid oil to destabilize from the barrier composition and drain from it. Further, the microparticulate high melting lipid promotes the formation of small fat crystals (from the triglyceride blend during cooling) which also contribute to the immobilization of the remaining liquid oil during cooling. The fact that the particles are lipid and are highly hydrophobic also is important because the composition or make up of the particle permits the small lipid particles to associate with the fat and stabilize fat particles in the moisture barrier composition.

In known fat/lipid systems, liquid fat does not necessarily remain stable at low storage temperatures and/or under storage temperature fluctuations. For example, chocolate

includes cocoa butter and looks stable at elevated temperatures. Yet, at lower storage temperatures, the fat in the cocoa butter will crystallize and fat particles grow. This growth results in larger fat particles which cause blooming of the fat on the surface of the chocolate. The system has destabilized. In contrast, the solid fat content in the moisture barrier described in the claims remains stable at 5°C such that the solid fat content does not change more than 5 weight percent. In this moisture barrier composition, fat crystals do not grow and cause a destabilization of the moisture barrier.

There Is No Teaching To Combine Averbach With Saur

Saur does not teach the particle size of the claims or the balancing of the latter with solid fat content and low melting point oil. Neither does Averbach. Additionally, there is no suggestion to take Saur's particles (even though they have the wrong size) and make them a part of Averbach's composition.

The Terminal Disclaimer

Although Applicants do not regard the double patenting rejection as well taken, the attached Terminal Disclaimer obviates the double patenting rejection over 6,472,006 to Loh et al.

Conclusion

Applicants respectfully submit with this amendment and 132 declaration, the claims patentably define the invention over the references and requests that a timely Notice of Allowance be issued in this case.

The Commissioner is hereby authorized to charge any additional fees which may be required in this application to Deposit Account No. 06-1135.

Respectfully submitted,
Fitch, Even, Tabin & Flannery

Timothy E. Levstik
Registration No. 30,192

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Fitch, Even, Tabin & Flannery
120 S. LaSalle St., Suite 1600
Chicago, Illinois 60603
Telephone: (312) 577-7000
Facsimile: (312) 577 7007